

# *MIPP Update*

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Fermilab All Experimenters' Meeting  
3/7/05

- Cryo-target
- Statistics
- Detector and beam

# *Cryo-target installation*

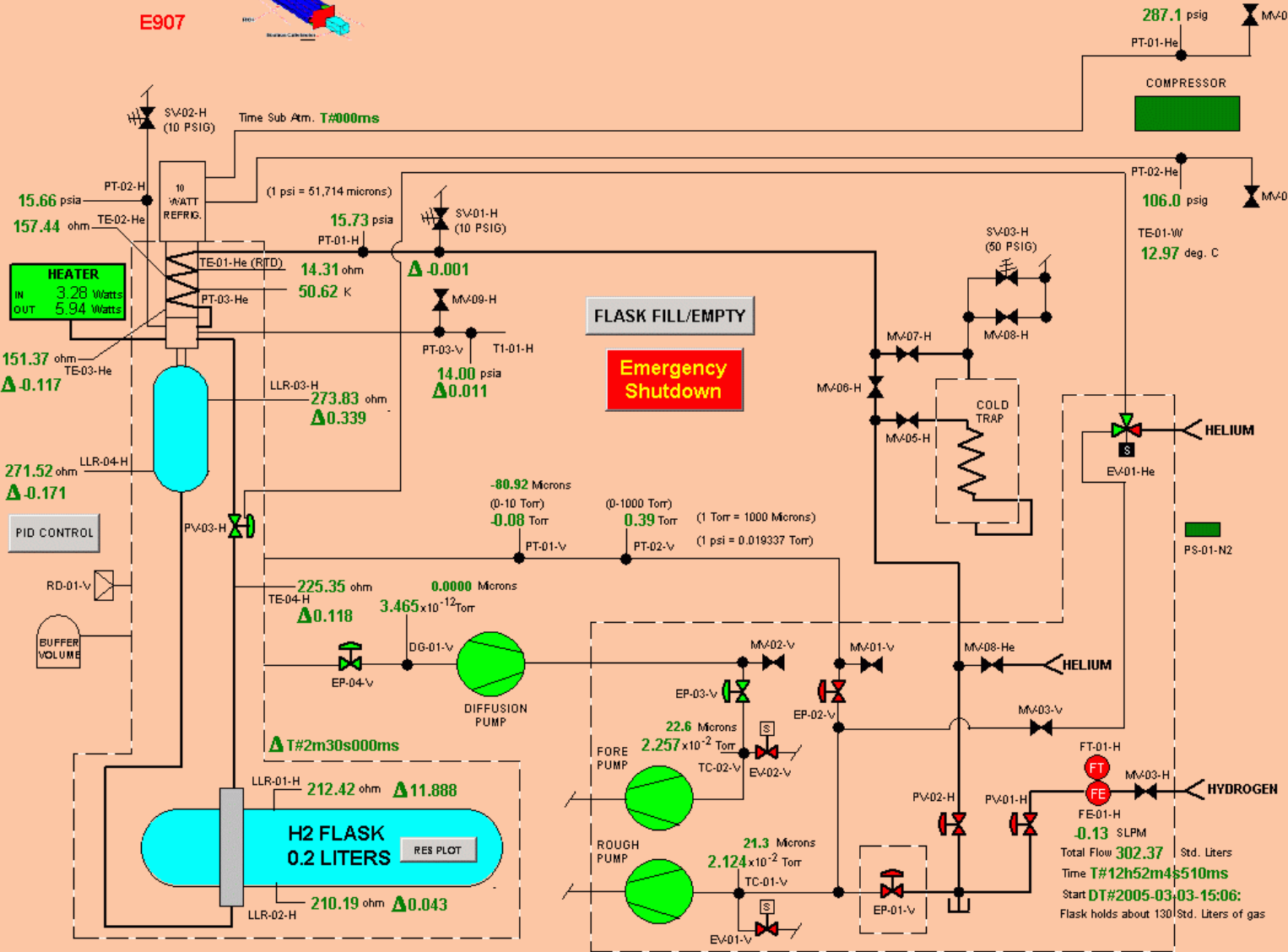
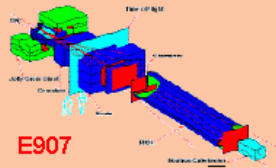
- Extensive preparations without impact on beam to MIPP solid targets until 2/26/05
- MC7 was opened on monday (2/28) morning for cryo-target installation. The target was ready for beam on LH2 at 2am on friday. Work was done ~7am to 7pm. Beam was taken ~7pm to 7am each day.
- Work done during four days:
  - Removal of target wheel for solid targets (monday morning)
  - Reinstallation of Scint counter with different mounting compatible with cryo-target (Had to modify this because TPC drawings were wrong.)
  - Surveying/alignment of Scint counter
  - Mounting and preliminary leak-checking of cryo-target cell.
  - Surveying/alignment of cryo-target (tuesday afternoon)
  - Final leak checking/fixing (one leak outside the refrigerator, minor) and initial startup (wednesday) (Had to move He-cylinder inside MC7 because regulator does not work at 20F even though spec'ed for 0F.)

# *Cryo-target installation*

- Work done during four days (cont.):
  - Decide to take empty target data over night (wednesday to thursday), cool down during day on thursday. Another small leak was fixed on thursday, then start. Could do remotely, but prefer to watch/ listen to the target system in MC7. (thursday)
  - Cooldown takes significantly (~2h) longer than expected.  
Possible explanations:
    - Higher ambient temperature ( $T^4$ )
    - Other small differences in setup after move
    - Air-to-vacuum leak!
- We are investigating now and will have a plan of action tomorrow afternoon.
  - Study cryo-target data in detail (heater power, temperatures, pressures, ...)
  - Look at indications of air-ice in MIPP data (vertex distributions, ...)

3/4/2005  
9:02:07 AM

# E907 Liquid H2 Target



## E907 Rack Alarms

- Rack Alarm**
- Magic Mixer Alarm**
- P10 Mixer Alarm**
- CKOV Alarm**
- DC/PWC Alarm**
- H2 Target**

To Silence Alarm Push Button

- STARTUP**
- HTR PLOT**
- TEMP PLOT (OHMS)**
- VAC PLOT**
- PRESS PLOT**
- MANUAL**
- Login/off**

# *MIPP Statistics*

- Alignment data was taken monday night with MIPP analysis magnets turned off.
  - $\pm 30$  GeV/c, 40k events
- Some special runs where taken to study beam tunes, Scint counter, TPC problems
- Data on full/empty cryo-target at +50GeV/c:
  - 26477 spills total (1919 spills without beam)
  - 365k interactions (52k empty target)
    - Evenly split among incident  $\pi$ , K, p

# *MIPP detector & beam status*

- TPC cables for initialization were slightly damaged during cryo-target installation
  - Work-around: Initialize four quadrants of TPC sequentially at run-start
    - Costs 40 seconds of additional initialization time
    - Sometimes some sticks come up bad
  - These cables will be replaced
- Studies to optimize usage of the Scint counter continue.
- Beam studies indicate that we can reduce beam related backgrounds by further tuning the secondary beam-line.
  - Dispersion at the momentum collimator needs to be understood for any new tune
- Some cables in MC7 were unplugged during open access to the detector
  - Please let me know of any work (building maintenance, etc.) in MC7 in advance

# *MIPP summary*

- Cryo-target was successfully installed last week.
  - Several small delays, we were working as fast as safely possible
  - Potential vacuum problem remains under investigation
- We really need the H<sub>2</sub> data for our physics program.
  - The down-time was worth it.
- Beam and detector improvements continue to be investigated and implemented.